Windows Installation Guide for Suricata IDS/IPS/NSM

This is a Suircata Windows Installation Guide –

Compilation from scratch.

Tested on Windows 7, Windows 8, Windows Server 2008R2, Server 2012 64 bit.

Date: 15 Jan 2016

Document Version: 1.4.2

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This is a guide of how to compile and come up with your own executable/binary of Suricata IDS/IPS on Windows. If you do not want to do that – there is a auto installation (MSI) windows native package here:

http://suricata-ids.org/download/

just run it and it will install and set up Suricata for you on your Windows system.

Installation

Cygwin – overview of installation

NOTE: Download - setup-x86.exe (32-bit installation). A compilation under 64 bit Cygwin installation will not work since WinPcap has only 32 bit downloads available and the compilation will fail.

After the installation is done you would need to add the packages below to your Cygwin installation - needed for Suricata to run:

libmpfr4, libmpfr-devel, mpfr, mingw-pthreads, gcc-core ,make, automake, automake1.9, zlib, zlib-devel, zlib0, autoconf, autoconf2.5, libtool , libglib2.0-devel, libglib2.0_0 ,pkg-config, libyaml-devel, libyaml0_2, libpcre1, libpcre-devel, file-devel, gcc-g++, wget

Extra and useful libraries/packages for enabling extra features during compile/make time or for compiling from git (latest devel version of Suricata):

luajit, luaji-devel, libGeoIP-devel, libGeoIP1, libnss-devel, libnss3, libnspr-devel, libnspr4, git

The above packages will allow us to enable during compile and build time the following extra features of Suricata –

- Lua (lua scripting)
- GeoIP
- MD5
- possibility to git clone the latest code if needed

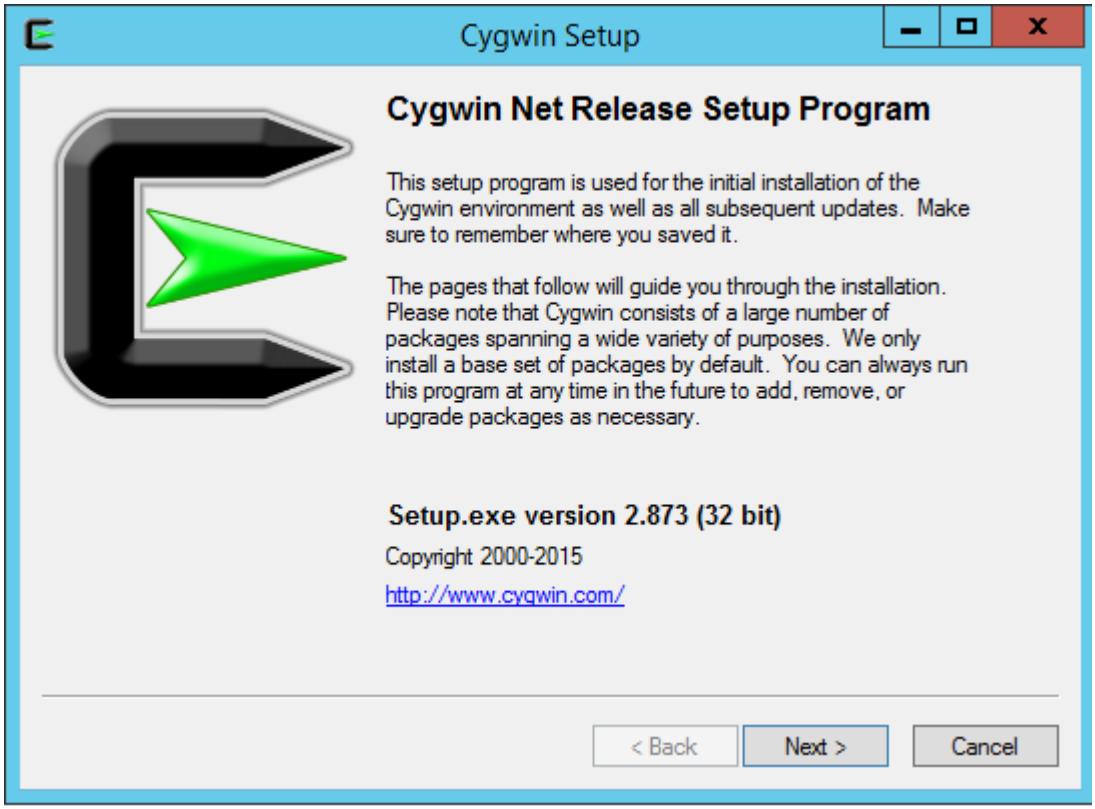
Cygwin – download and install

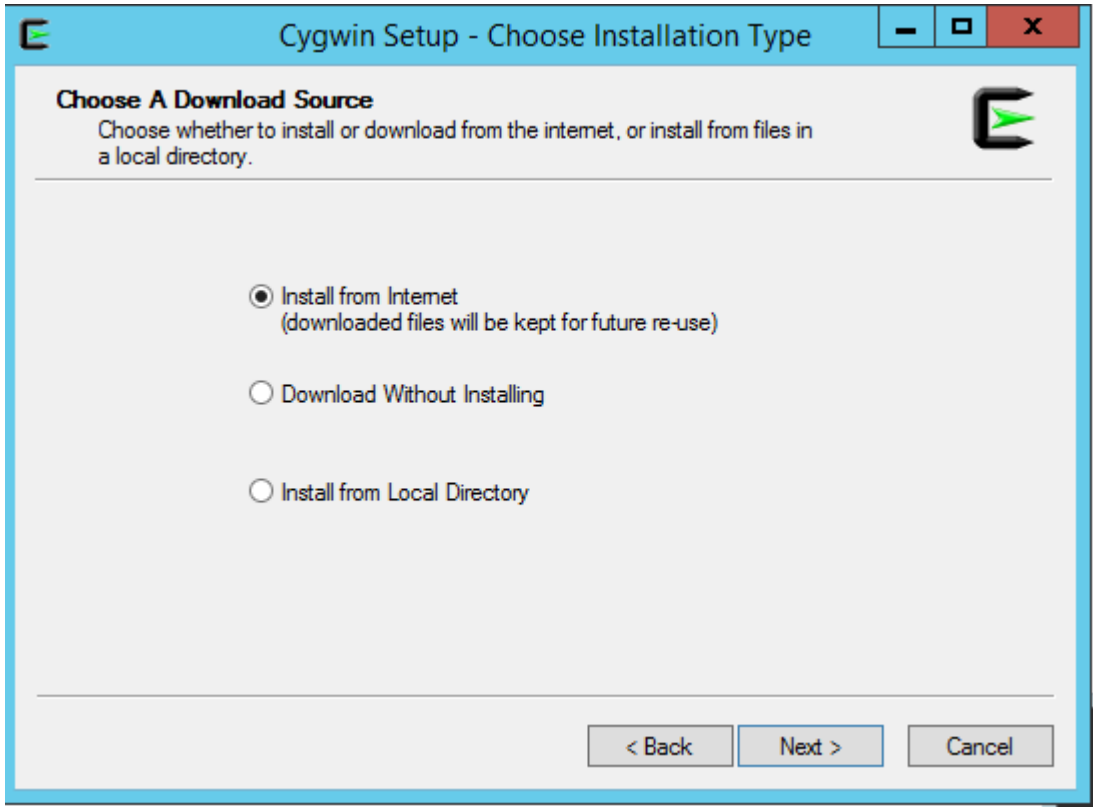
The following installations instructions were executed on Windows Server 2012R2 64 bit.

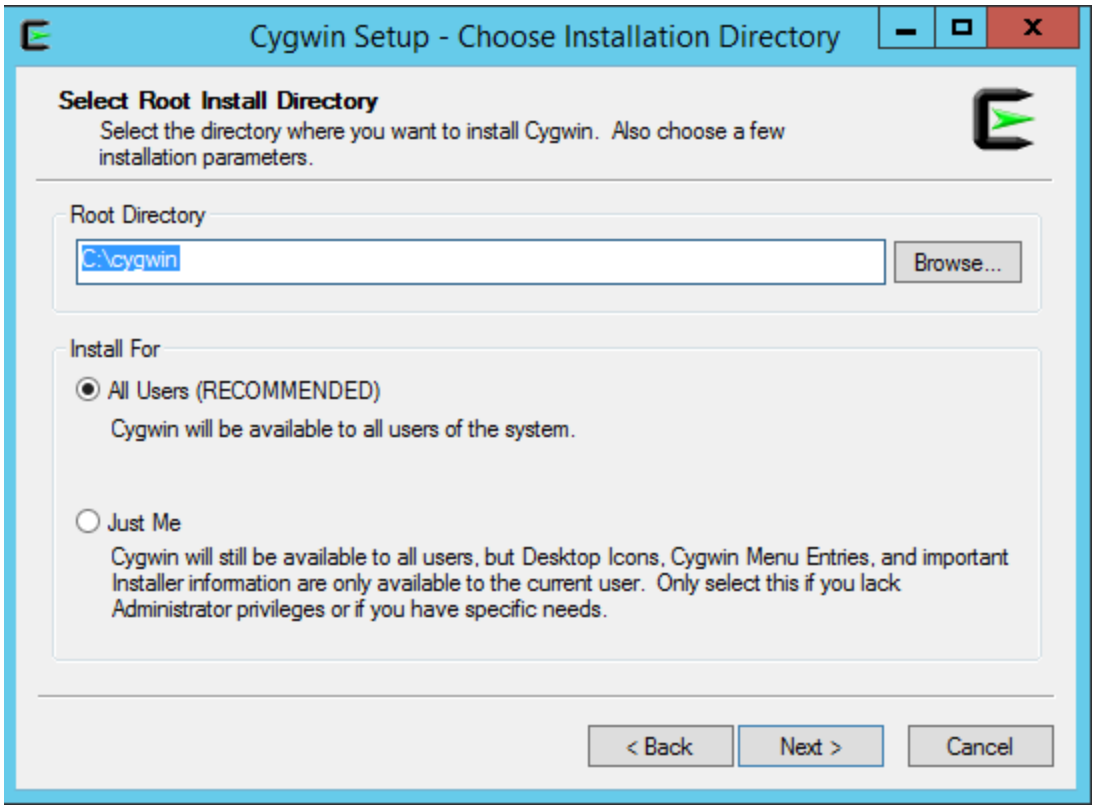
About 500 -600MB of space needed in total with all the necessary prerequisites installed.

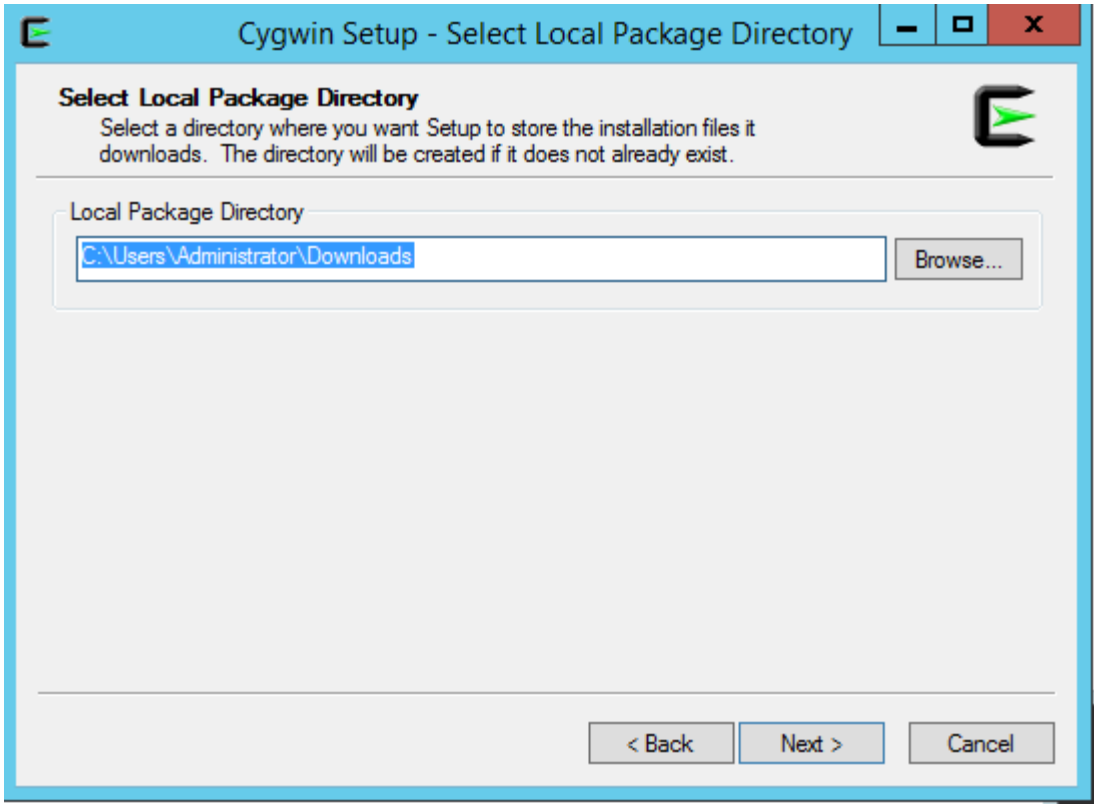
Download http://cygwin.com/setup-x86.exe then double click the setup.exe to install

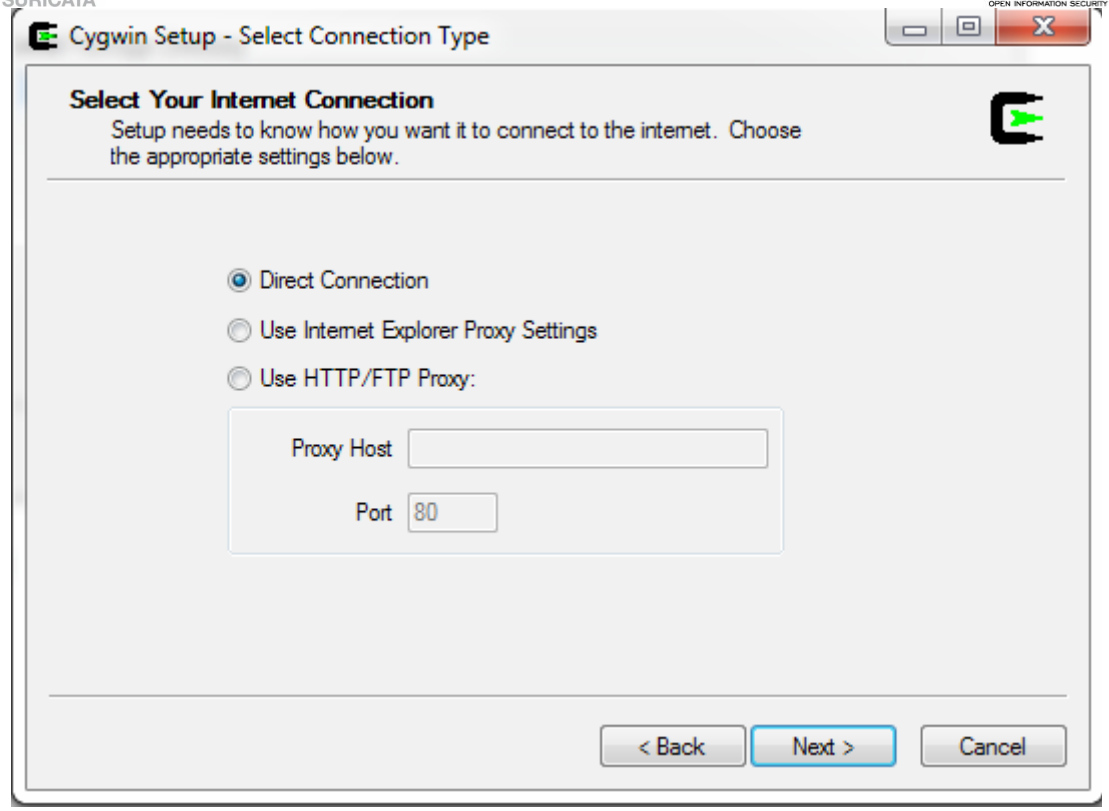
Go ahead and install it with the default options (basically just click next and ok)




Cygwin Setup - Choose Installation Type
Choose A Download Source
Choose whether to install or download from the internet, or install from files in a local directory.
Install from Internet
(downloaded files will be kept for future re-use)
Download Without Installing
Install from Local Directory
< Back
Next >
Cancel

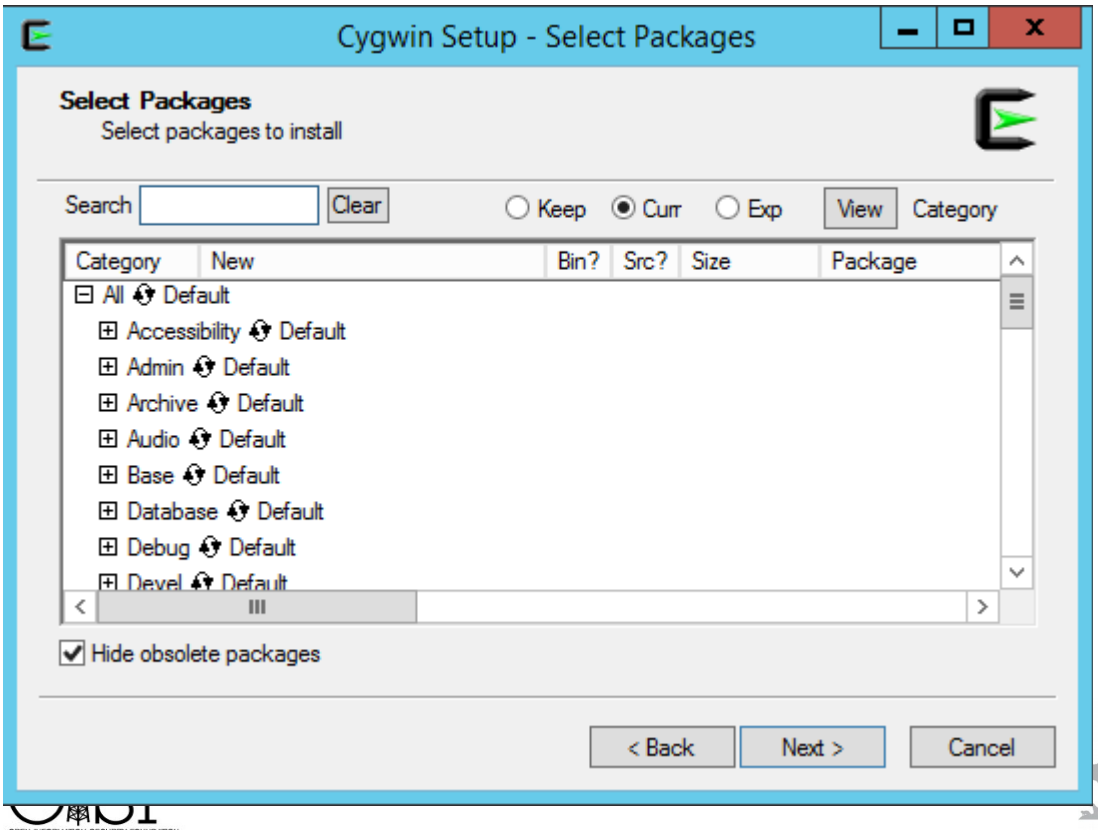

Cygwin Setup - Choose Installation Directory
Select Root Install Directory
Select the directory where you want to install Cygwin. Also choose a few installation parameters.
Root Directory
C:\cygwin
Browse...
Install For
All Users (RECOMMENDED)
Cygwin will be available to all users of the system.
Just Me
Cygwin will still be available to all users, but Desktop Icons, Cygwin Menu Entries, and important Installer information are only available to the current user. Only select this if you lack Administrator privileges or if you have specific needs.
< Back
Next >
Cancel


Cygwin Setup - Select Local Package Directory
Select Local Package Directory
Select a directory where you want Setup to store the installation files it downloads. The directory will be created if it does not already exist.
Local Package Directory
C:\Users\Administrator\Downloads
Browse...
< Back
Next >
Cancel

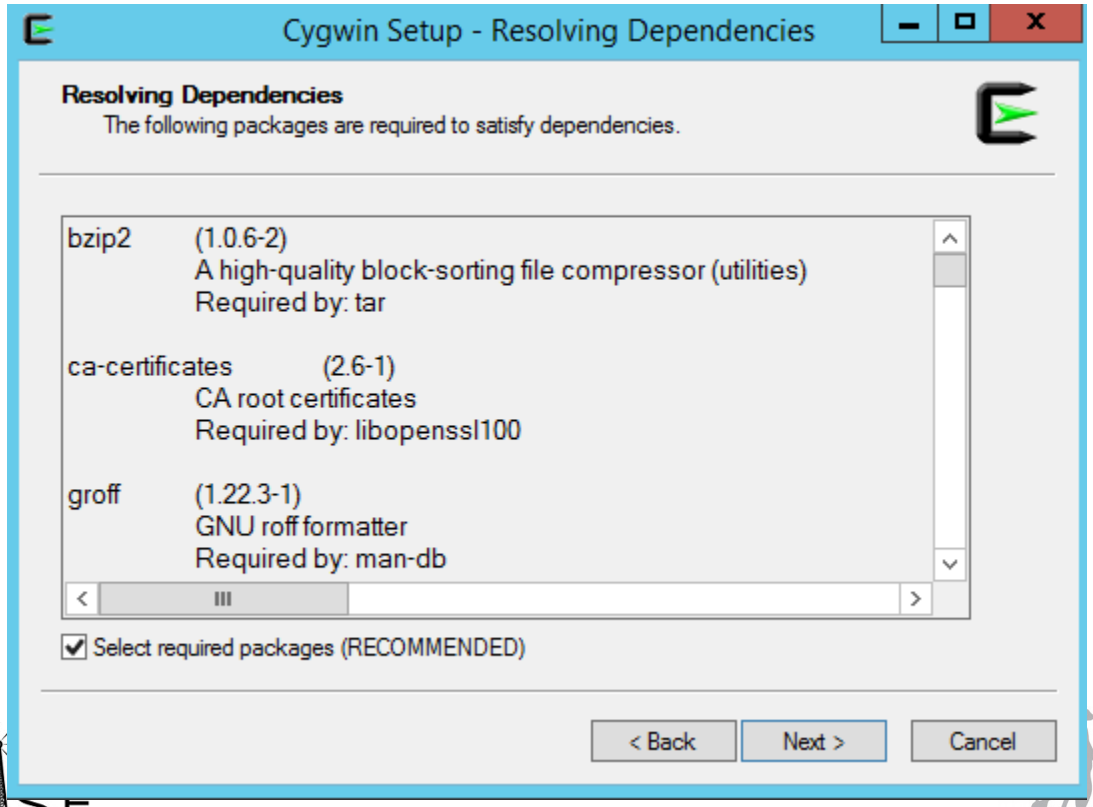


Here , select any mirror you want:

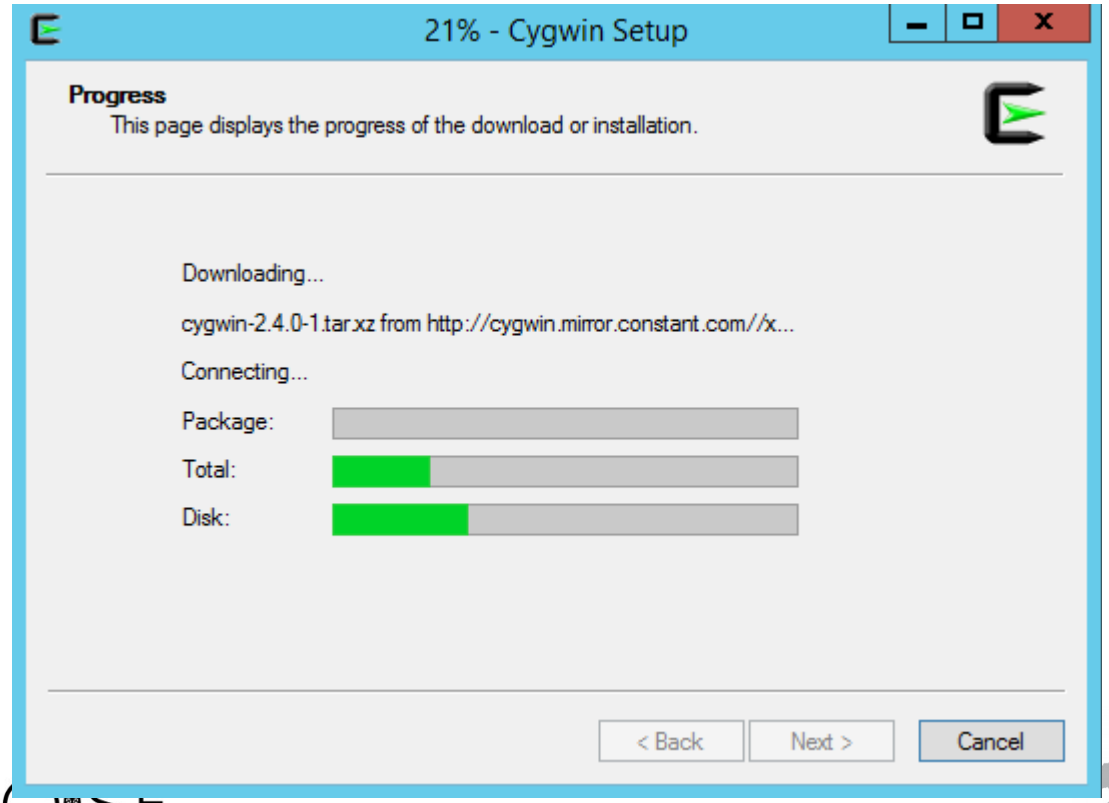
Click next to continue:



Next again to proceed with installation of the base packages:



Then you are going to see a progress bar:




SURICATA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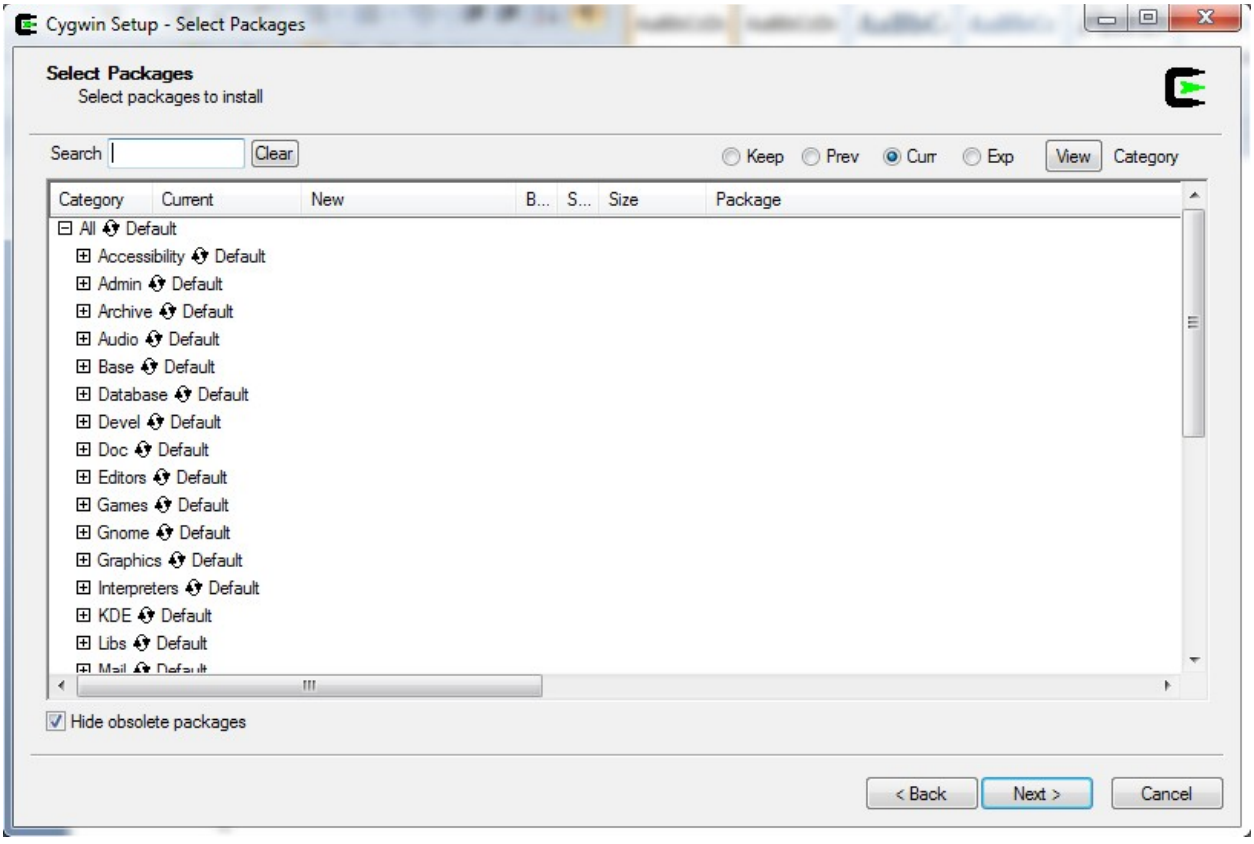
SURICATA

Install Suricata specific dependencies

After the installation is finished – we need to install the Suricata specific build dependencies (as described just before this section)

Go back and double-click the very same **setup-x86.exe** – we will need to install the extra packages necessary for Suricata to run.

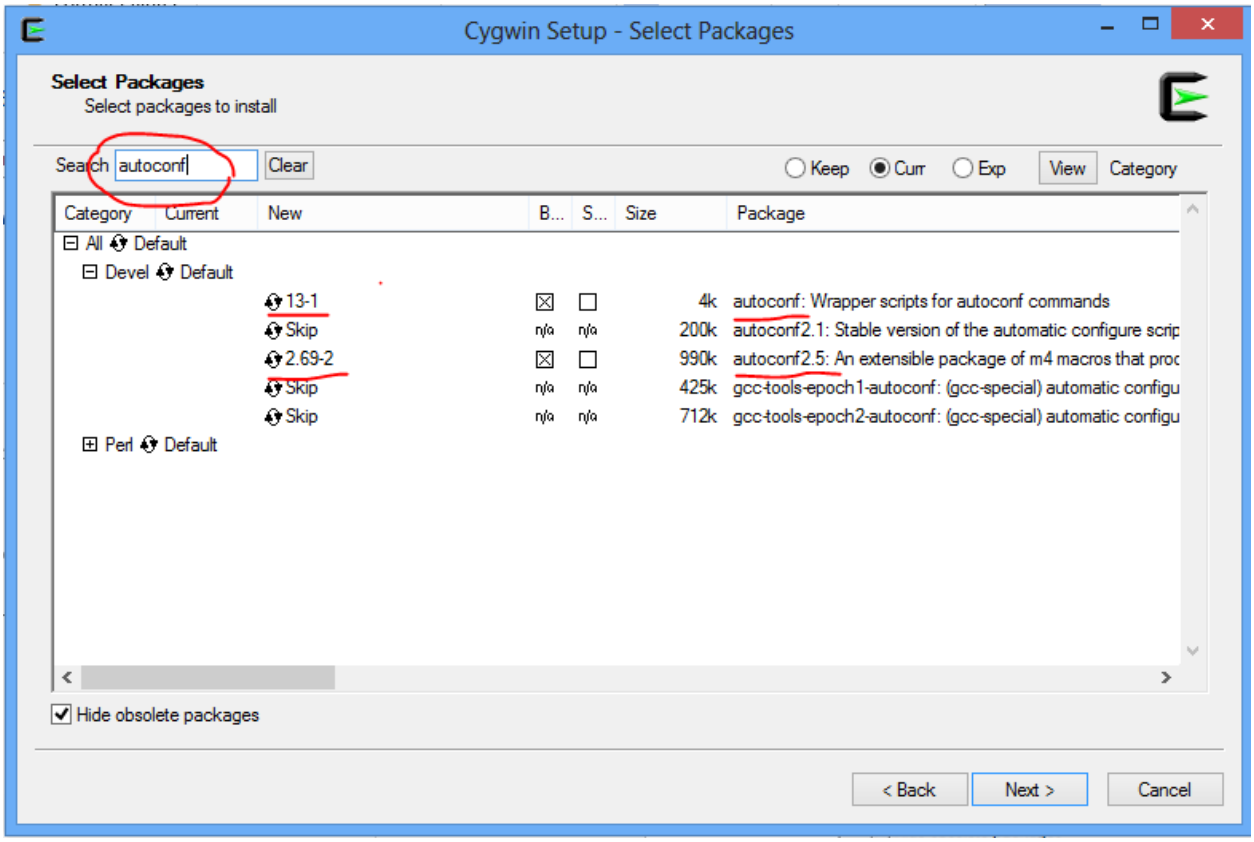
Click next and ok until you are presented with the following screen:



Here is where we search select and queue for installation the additional packages needed.

In the picture below , in the search box type in the name of the package- the search will return automatically , results , select the necessary package. Erase the contentment of the search box and type in the name of the next package, select … and so on.

Do the same for all the needed packages, DO NOT hit next until you have selected all the packages.

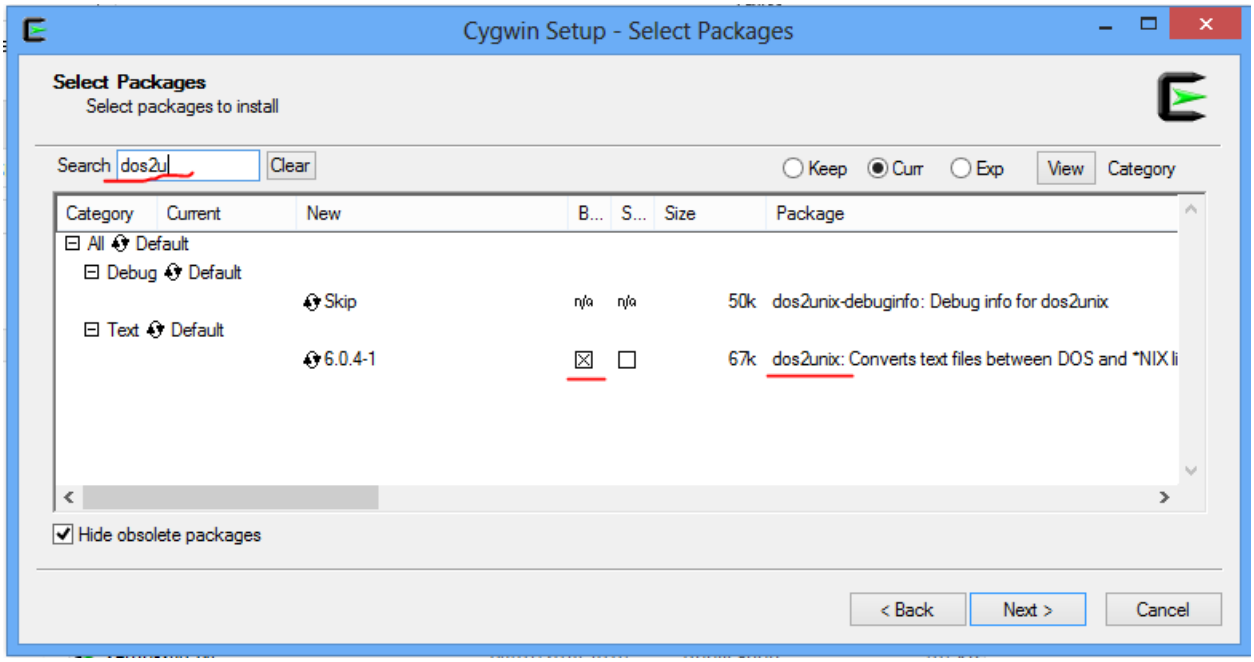


The necessary packages are:

libmpfr4, libmpfr-devel, mpfr, mingw-pthreads, gcc-core ,make, automake, automake1.9, zlib, zlib-devel, zlib0, autoconf, autoconf2.5, libtool , libglib2.0-devel, libglib2.0_0 ,pkg-config, libyaml-devel, libyaml0_2, libpcre1, libpcre-devel, file-devel, gcc-g++, wget

And if you would like to enable extra functionality -

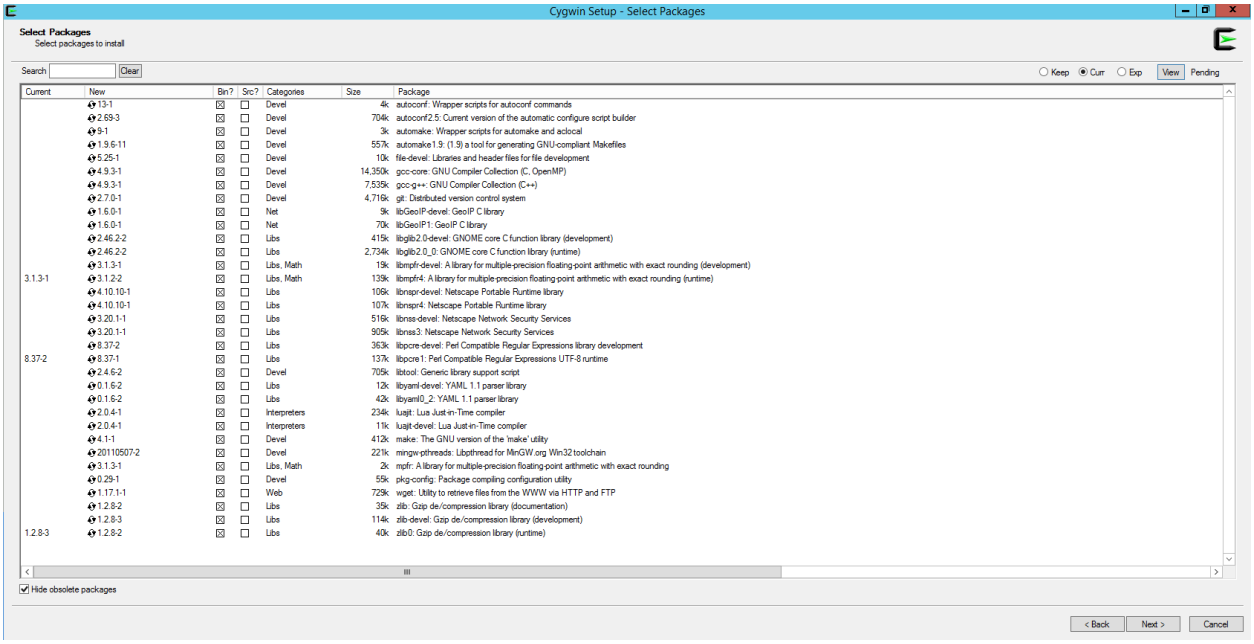
luajit, luaji-devel, libGeoIP-devel, libGeoIP1, libnss-devel, libnss3, libnspr-devel, libnspr4, git



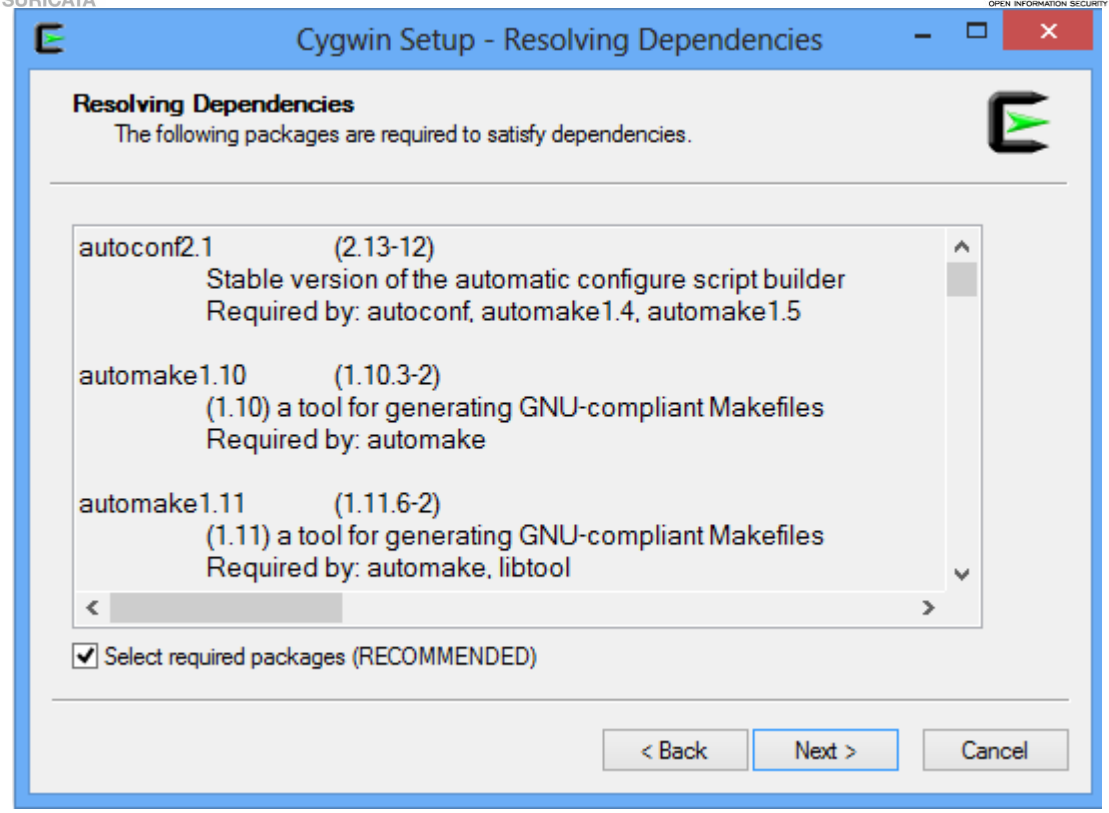
After you are done selecting the packages – make sure the “search” box is cleared, click the “view” button until the text on the right of the button displays “pending”.

Check and make sure all the needed packages are selected! If something is missing, go back and select it!

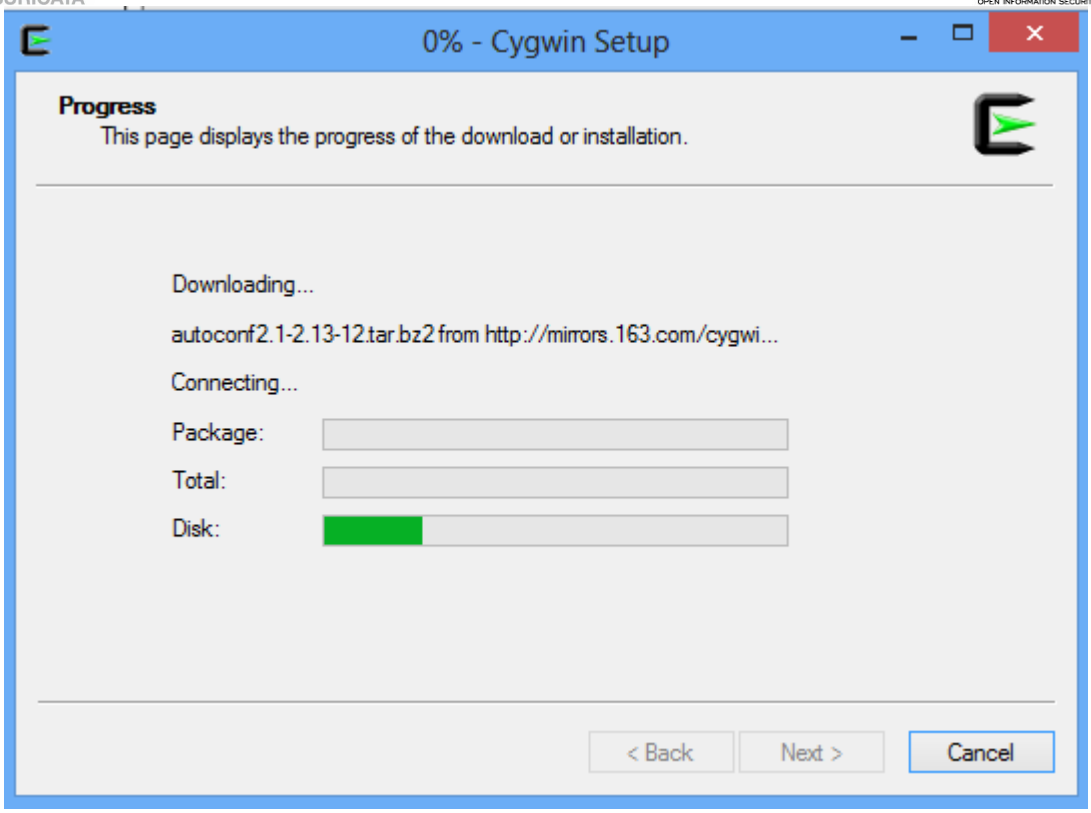
Click Next:



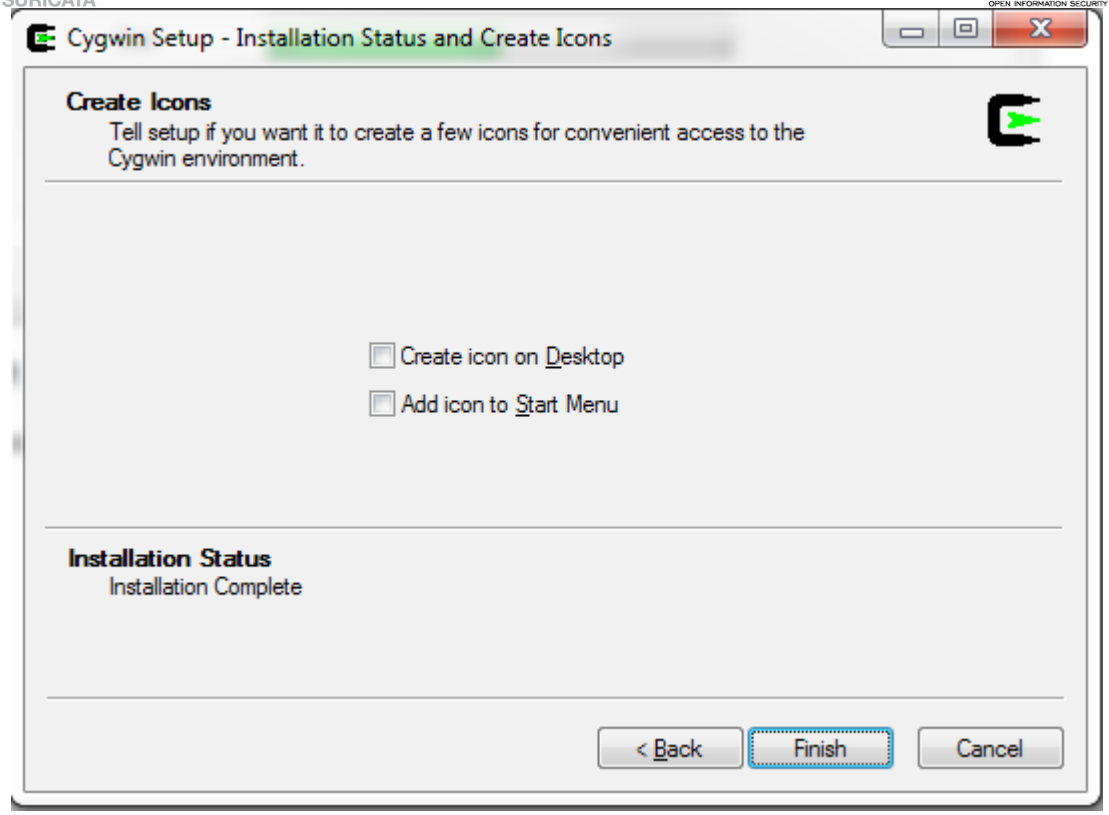
After that click next (make sure the option “select required packages (RECOMMENDED)” is selected!) :



The extra packages that you have selected will start to download and install:



This could also take 5 min or so. Then click finish:

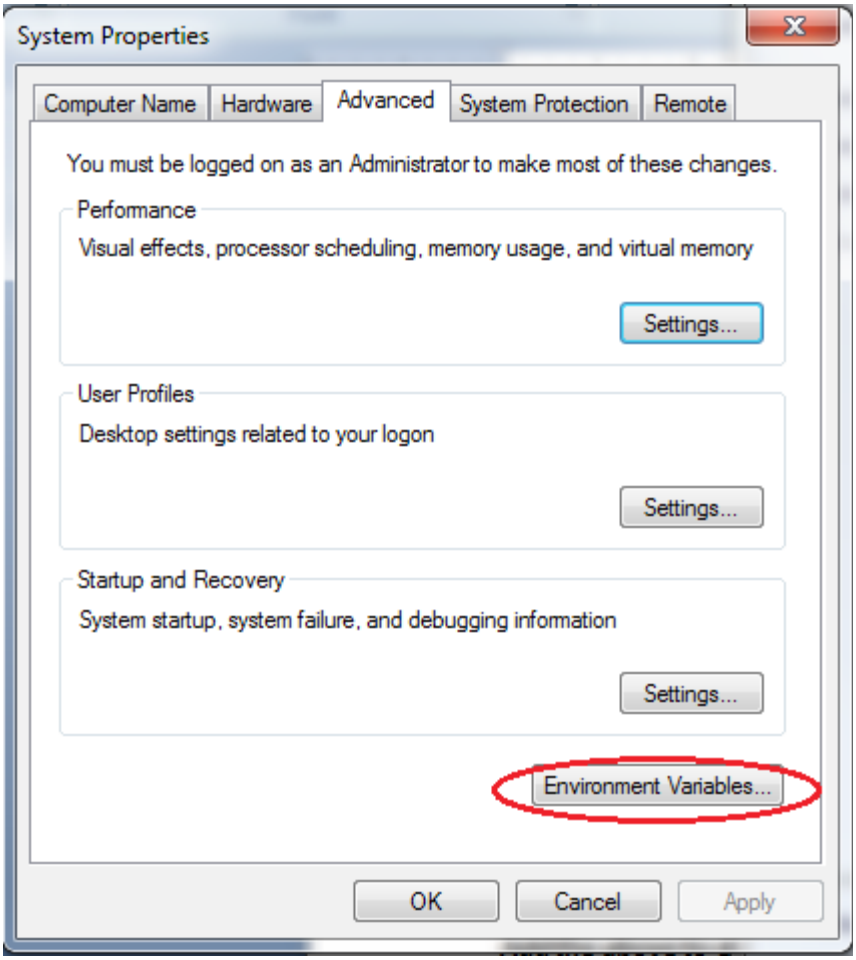


System variables - add paths

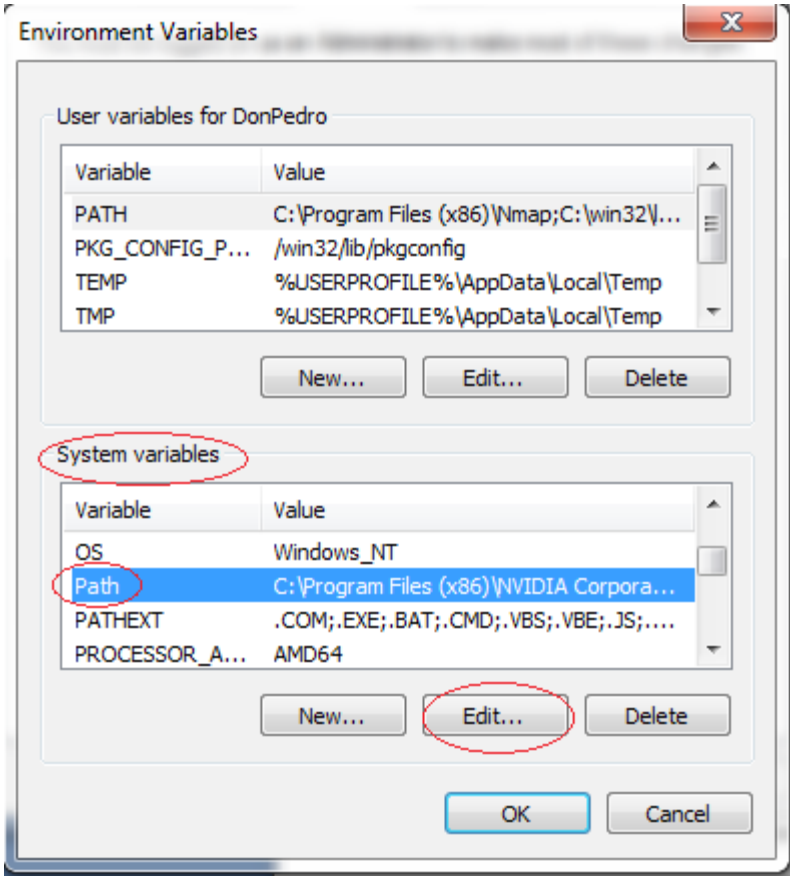
Add path to system variables (Win 7, Win 8, 2008, 2012 Server - Control Panel\System and Security\System\Advanced system settings\Environment Variables) :

C:\cygwin\bin;C:\cygwin\lib\pkgconfig;

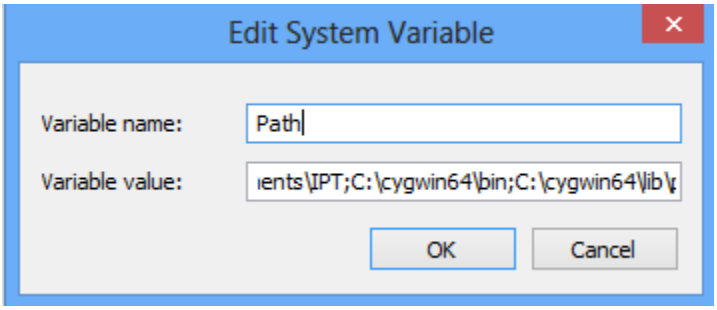
Add the above to environment system variables in your windows system!! See the picture below



Edit the system path variable:



Add “ C:\cygwin\bin;C:\cygwin\lib\pkgconfig; “ without the quotes to the end of the ” Variable value path “ :



Get libpcap – for windows

Go to http://www.winpcap.org/install/default.htm and download the WinPcap installer for windows (at the time of this writing the current version was 4.1.3)

Install the WinPcap (double click, and just use the default options, basically click next and ok until finished.)

This is IMPORTANT , this is the development pack, we need that for Suricata to be able to run on Windows.

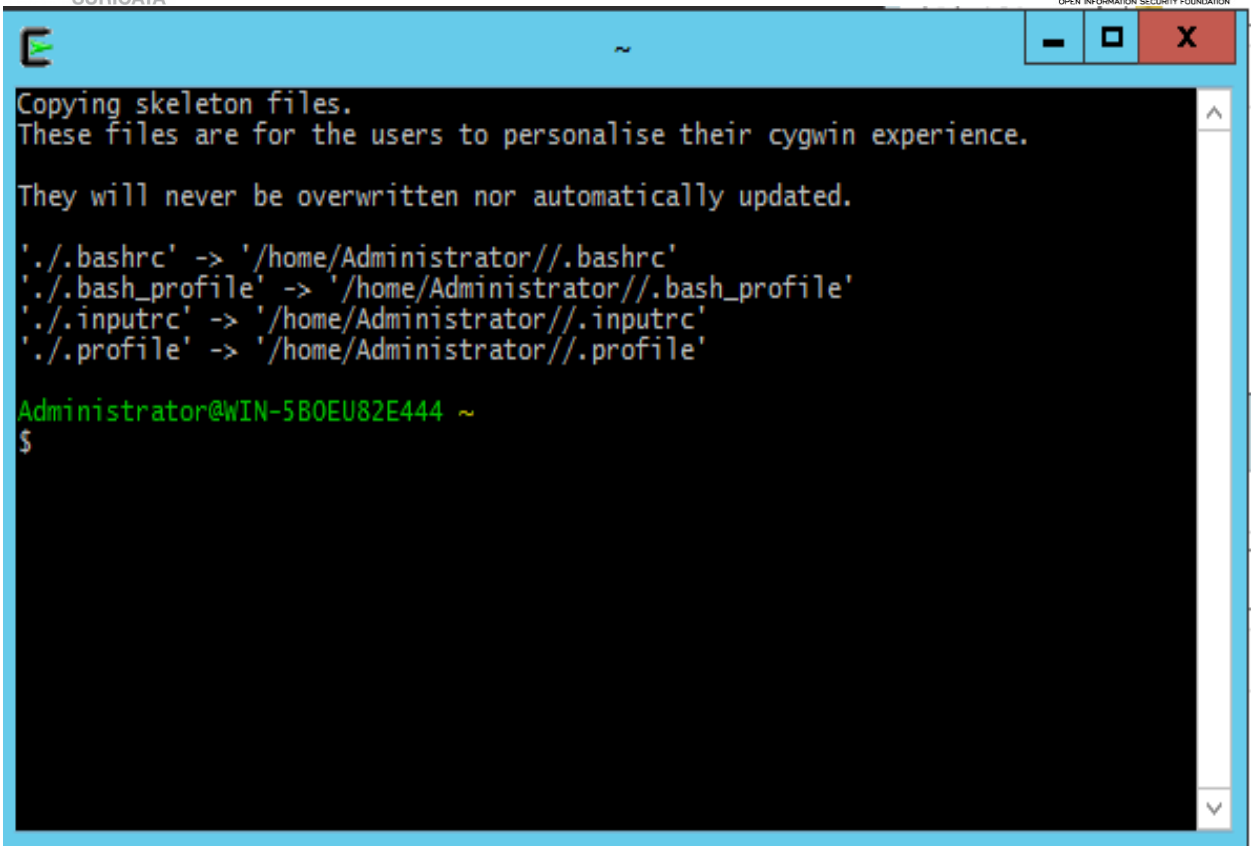
After that is done go to http://www.winpcap.org/devel.htm. Download the package and unpack it anywhere you like.

Copy libraries (from the unpacked directory) like this:

- ✓ **Copy ALL the content of WpdPack\Lib\ to cygwin\lib**
- ✓ **Rename "libwpcap" to "libpcap" (in your cygwin\lib\ directory)**
- ✓ **Copy all headers (all the content)from WpdPack\Include\ to C:\cygwin\usr\include**

Start Cygwin

Open CYGWIN. Double click your CYGWIN icon on your desktop. A Linux/bash like command prompt will open:



Compile Suricata

Suricata from git – latest version

(next section describes compilation for stable,beta,RC)

Get and compile Suricata.

As you are still in the CYGWIN environment -

Type in

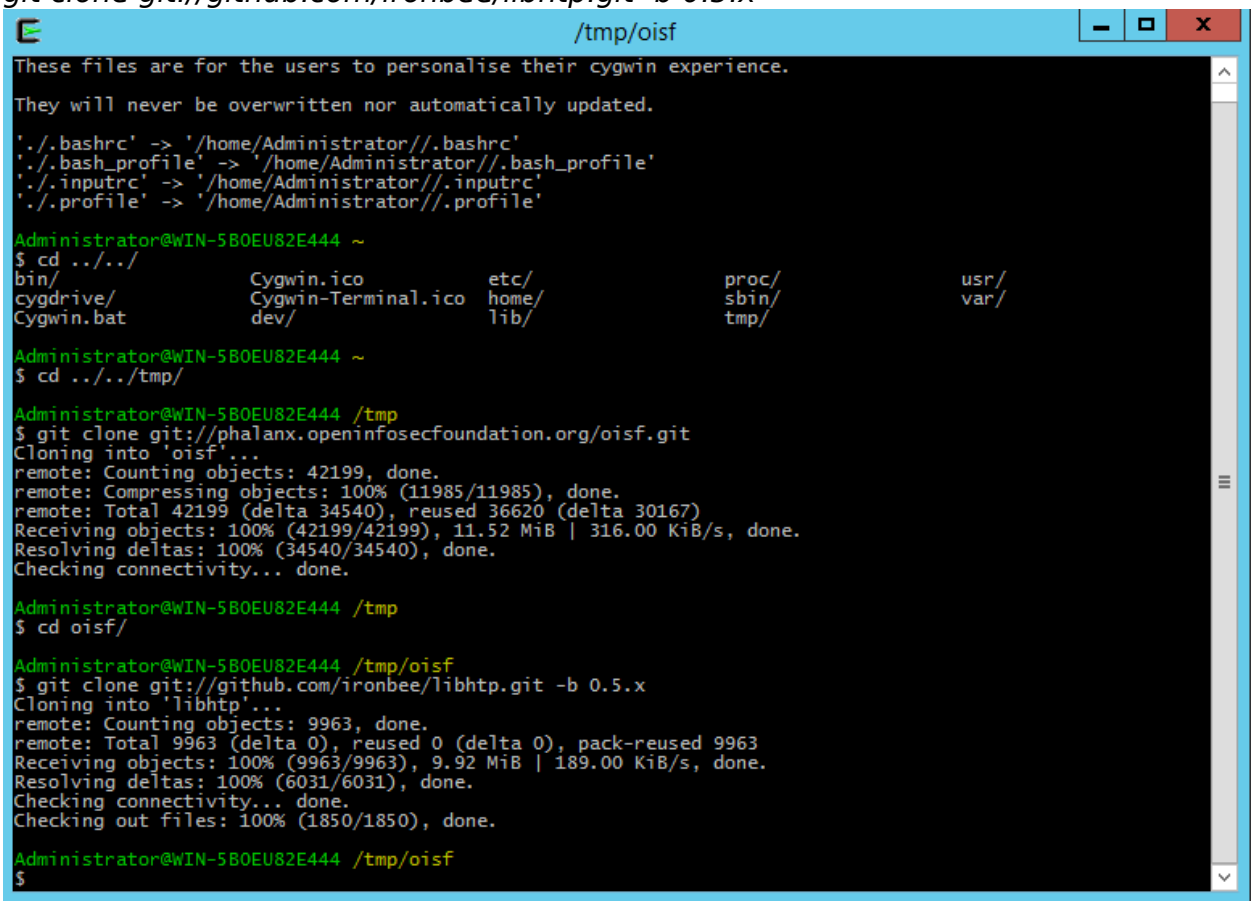
git clone git://phalanx.openinfosecfoundation.org/oisf.git

Then after it is done

cd oisf

Then we need libhtp:

git clone git://github.com/ironbee/libhtp.git -b 0.5.x



Then we execute the following command(type and hit enter):

./autogen.sh && ./configure --enable-luajit --enable-pie --enable-geoip --disable-gccmarch-native --with-libnss-libraries=/usr/lib --with-libnss-includes=/usr/include/nss/ --with-libnspr-libraries=/usr/lib --with-libnspr-includes=/usr/include/nspr && make clean && make

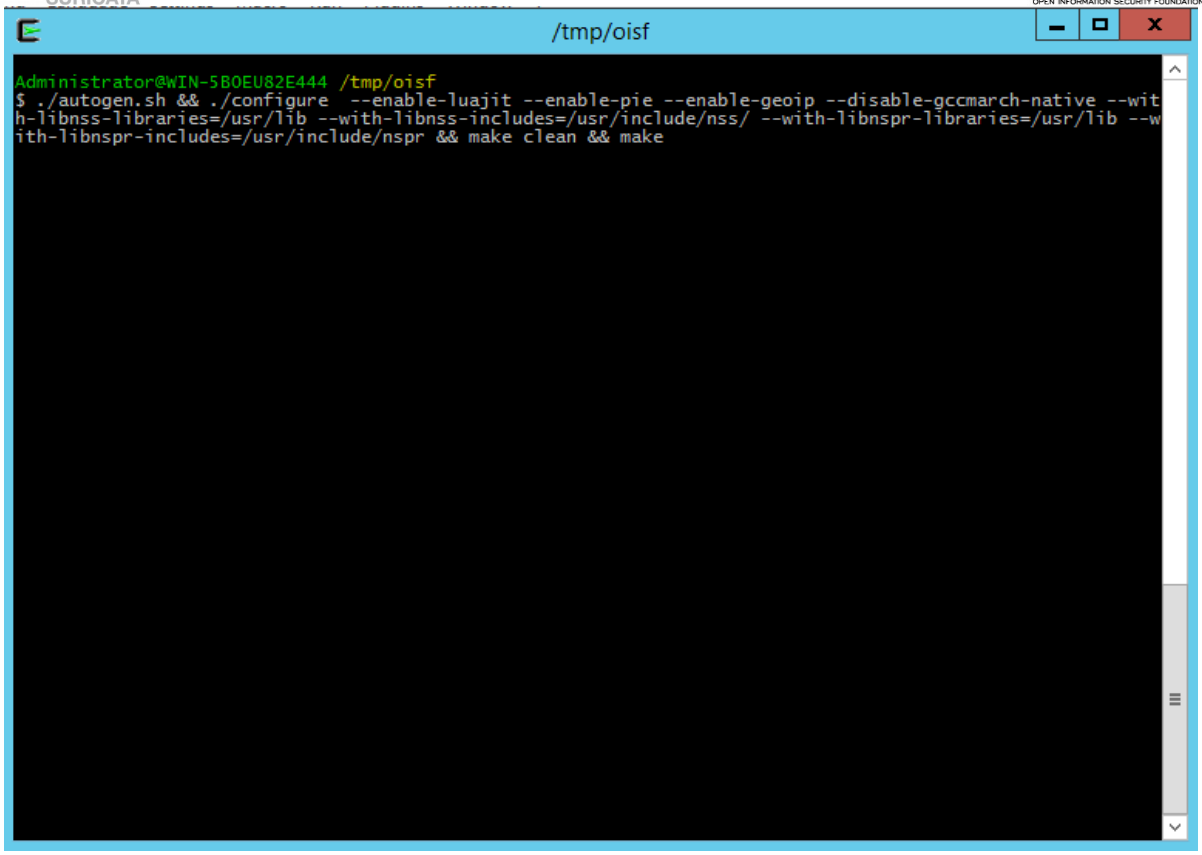
That will start configuration and compilation of Suricata.

The part -

> *-with-libnss-libraries=/usr/lib --with-libnss-includes=/usr/include/nss/ --with-libnspr-libraries=/usr/lib –with-libnspr-includes=/usr/include/nspr*

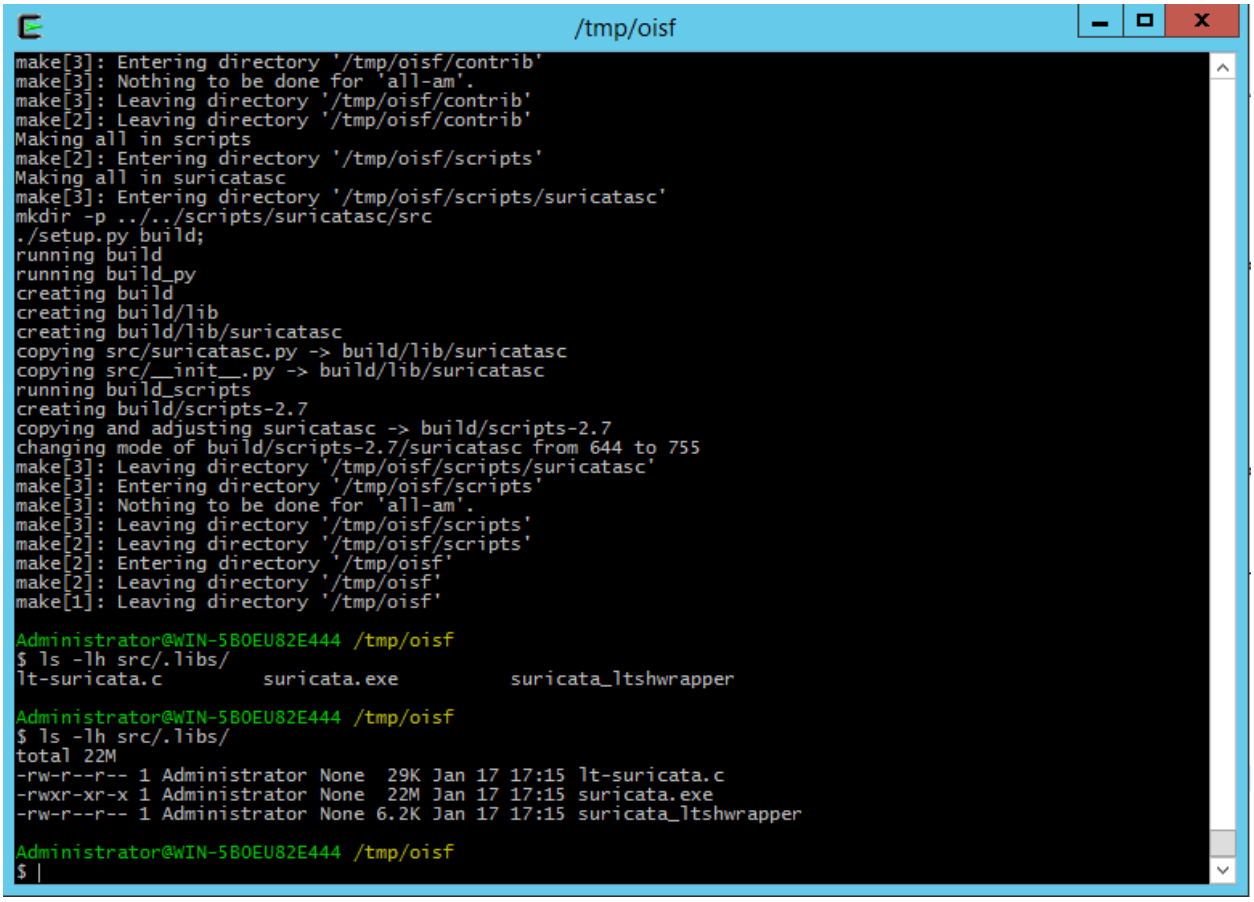
will enable DM5s functionality for Suricata.

Like so:



Let it run…..this could take a few minutes or so

After it is done your **suricata.exe** binary will be located under ***src/.libs/suricata.exe***:



Suricata Stable, Beta or RC compilation

As you are still in the CYGWIN environment -

This section uses Suricata 3.0RC3 as an example.

If you want to install Suricata stable you can find it here - http://suricata-ids.org/download/

go to a tmp dir. Type in and hit enter to complete each step:

1) *wget http://www.openinfosecfoundation.org/download/suricata-3.0RC3.tar.gz*
2) *tar –zxf suricata-3.0RC3.tar.gz*
3) *cd suricata-3.0RC3*
4) *libtoolize -c && autoreconf -fv --install && ./configure --enable-luajit --enable-pie --enable-geoip --disable-gccmarch-native --with-libnss-libraries=/usr/lib --with-libnss-includes=/usr/include/nss/ --with-libnspr-libraries=/usr/lib --with-libnspr-includes=/usr/include/nspr && make clean && make*

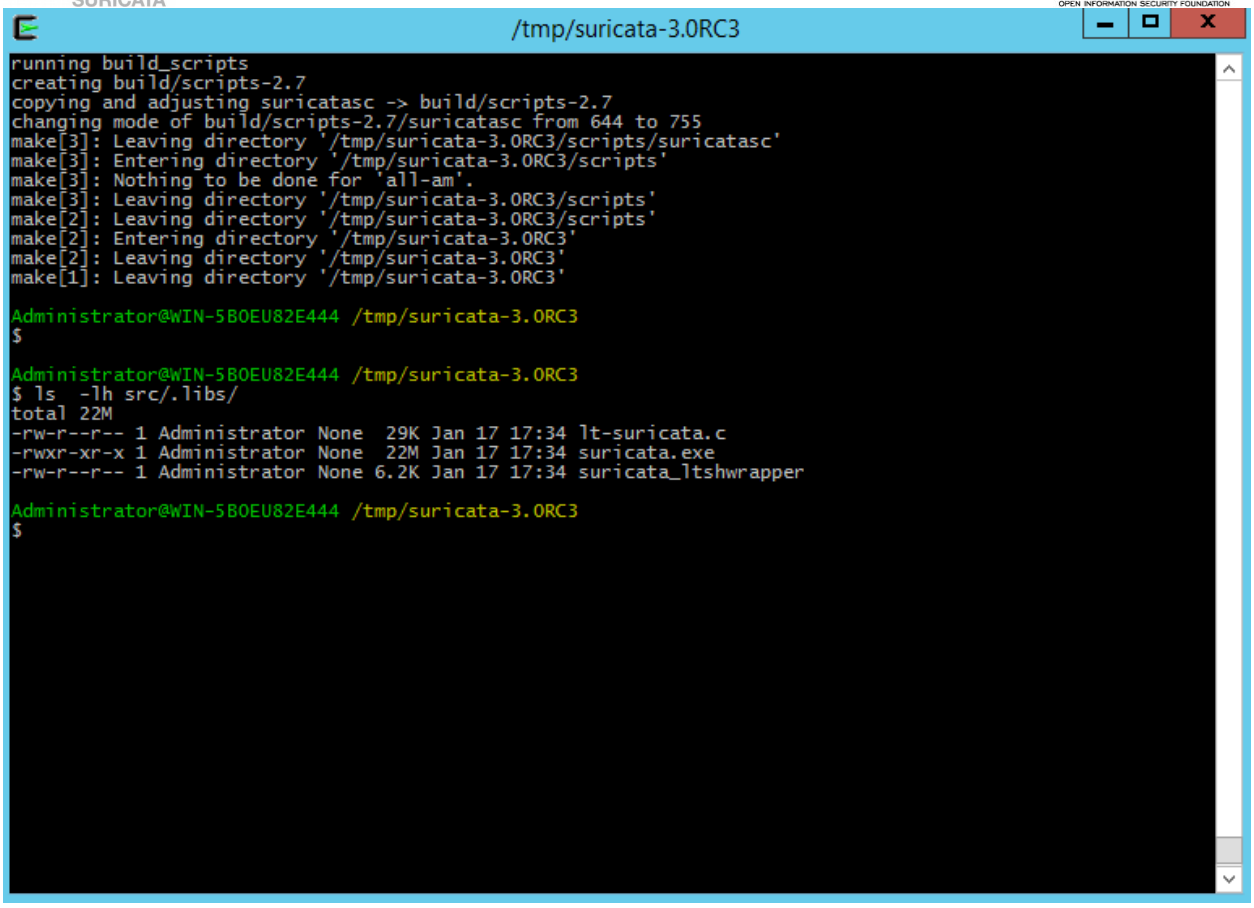
The part -

-with-libnss-libraries=/usr/lib --with-libnss-includes=/usr/include/nss/ --with-libnspr-libraries=/usr/lib –with-libnspr-includes=/usr/include/nspr

will enable DM5s functionality for Suricata.

NOTE: Please not the difference in the compilation line (4 above) for stable/beta/RC and for git.

After done the ***suricata.exe*** binary will be located in the folder ***/src/.libs/suricata.exe***



Next steps.

For the instructions below if you want to use stable or RC3 (as opposed to latest git Suricata) – just substitute the ***oisf*** directory with the appropriate name – ***suricata-3.0RC3*** for example.

Set up Suricata for Windows

Set up and copy needed config and dll files

Create the following directories:

- C:\Program Files (x86)\Suricata\log
- C:\Program Files (x86)\Suricata\log\files
- C:\Program Files (x86)\Suricata\log\certs
- C:\Program Files (x86)\Suricata\rules

Then copy the suricata.exe file from C:\cygwin\tmp\oisf\src\.libs to C:\Program Files (x86)\Suricata

NOTE: It is not a must to place Suricata in C:\Program Files (x86)\Suricata you can place it anywhere you would like.

Copy (from C:\cygwin\bin)

1. cyggcc_s-1.dll
2. cygGeoIP-1.dll
3. cygluajit-5.1-2.dll
4. cygmagic-1.dll
5. cygnspr4.dll
6. cygnss3.dll
7. cygnssutil3.dll
8. cygpcre-1.dll
9. cygplc4.dll

10.cygplds4.dll

11.cygwin1.dll

12.cygz.dll

to your C:\Program Files (x86)\Suricata directory

Also copy C:\cygwin\usr\share\misc\magic.mgc to your C:\Program Files (x86)\Suricata directory

Download rules

Go to http://rules.emergingthreats.net/open/suricata/

Download a rule set.

http://rules.emergingthreats.net/open/suricata/emerging.rules.tar.gz

Unzip/untar the rule set in the C:\Suricata\rules directory.

Then go to C:\cygwin\tmp\oisf

Copy

classification.config , reference.config and suricata.yaml to

C:\Program Files (x86)\Suricata

Adjust suricata.yaml configuration

Open suricata.yaml with an editor – Notepad, Notepad++, whichever you like and change the following lines:

 # The default logging directory. Any log or output file will be

 # placed here if its not specified with a full path name. This can be

 # overridden with the -l command line parameter.

default-log-dir: C:\\Program Files (x86)\\Suricata\\log

....

....

 # Magic file. The extension .mgc is added to the value here.

#magic-file: /usr/share/file/magic

magic-file: C:\Program Files (x86)\Suricata\magic.mgc

...

...

```
  outputs:
  - console:
      enabled: yes
      # type: json
  - file:
      enabled: yes
```

filename: C:\\Program Files (x86)\\Suricata\\log\\suricata.log

 # type: json

...

...

 # Set the default rule path here to search for the files.

 # if not set, it will look at the current working dir

default-rule-path: C:\\Program Files (x86)\\Suricata\\rules

rule-files:

...

...

classification-file: C:\Program Files (x86)\Suricata\classification.config

reference-config-file: C:\Program Files (x86)\Suricata\reference.config

...

...

vars:

 # Holds the address group vars that would be passed in a Signature.

 # These would be retrieved during the Signature address parsing stage.

address-groups:

HOME_NET: "[192.168.0.0/16,10.0.0.0/8,172.16.0.0/12]" (adjust network ranges here to the ones that you want Suricata to inspect)

EXTERNAL_NET: "!$HOME_NET"

HTTP_SERVERS: "$HOME_NET"

SMTP_SERVERS: "$HOME_NET"

Check enabled features for Suricata

Open a cmd as ADMINISTRATOR!!!.

Got to C:\Program Files (x86)\Suricata and execute

suricata.exe –build-info


Administrator: Command Prompt
C:\Program Files (x86)\Suricata>
C:\Program Files (x86)\Suricata>suricata.exe --build-info
This is Suricata version 3.0dev (rev 44a444b)
Features: PCAP_SET_BUFF LIBPCAP_VERSION_MAJOR=1 HAVE_PACKET_FANOUT HAVE_HTP_URI_
NORMALIZE_HOOK PCRE_JIT HAVE_NSS HAVE_LUA HAVE_LUAJIT TLS
SIMD support: none
Atomic intrisics: 1 2 4 8 byte(s)
32-bits, Little-endian architecture
GCC version 4.9.3, C version 199901
L1 cache line size (CLS)=64
thread local storage method: __thread
compiled with LibHTP v0.5.18, linked against LibHTP v0.5.18
Suricata Configuration:
AF_PACKET support: no
PF_RING support: no
NFQueue support: no
NFLOG support: no
IPFW support: no
Netmap support: no
DAG enabled: no
Napatech enabled: no
Unix socket enabled: no
Detection enabled: yes
libnss support: yes
libnspr support: yes
libjansson support: no
hiredis support: no
Prelude support: no
PCRE jit: yes
LUA support: yes, through luajit
libluajit: yes
libgeoip: yes
Non-bundled htp: no
Old barnyard2 support: no
CUDA enabled: no
Suricatasc install: yes
Unit tests enabled: no
Debug output enabled: no
Debug validation enabled: no
Profiling enabled: no
Profiling locks enabled: no
Coccinelle / spatch: no
Generic build parameters:
Installation prefix: /usr/local
Configuration directory: C:\Program Files (x86)\Suricata\
Log directory: C:\Program Files (x86)\Suricata\log
--prefix NONE
--sysconfdir /usr/local/etc
--localstatedir /usr/local/var
Host: i686-pc-cygwin
Compiler: gcc (exec name) / gcc (real)
GCC Protect enabled: no
GCC march native enabled: no
GCC Profile enabled: no
Position Independent Executable enabled: yes
CFLAGS -g -O2
PCAP_CFLAGS
SECCFLAGS
C:\Program Files (x86)\Suricata>

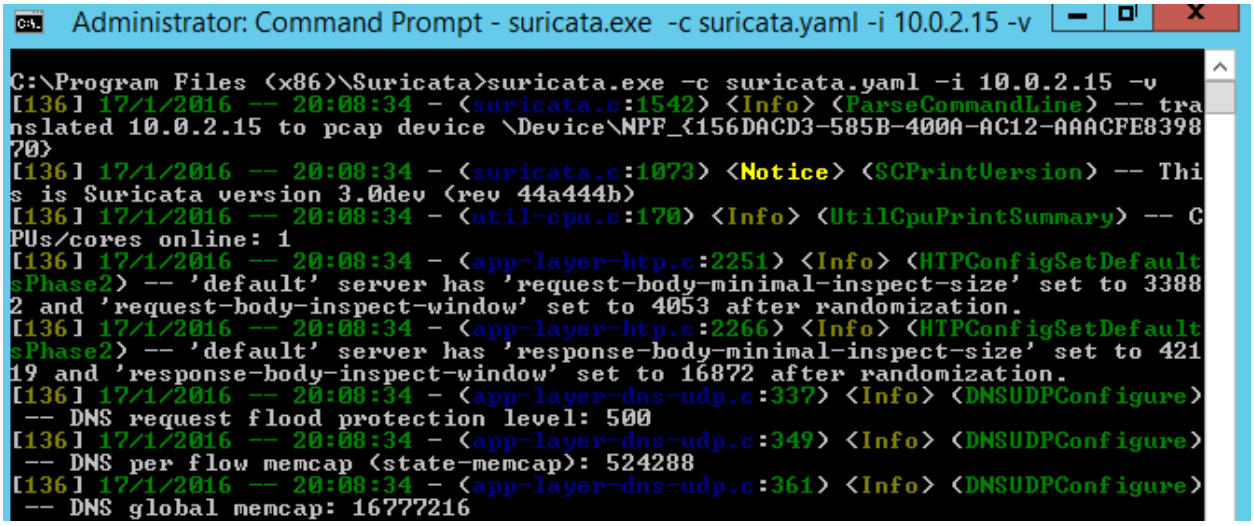
Run Suricata

Open a cmd as ADMINISTRATOR!!!.

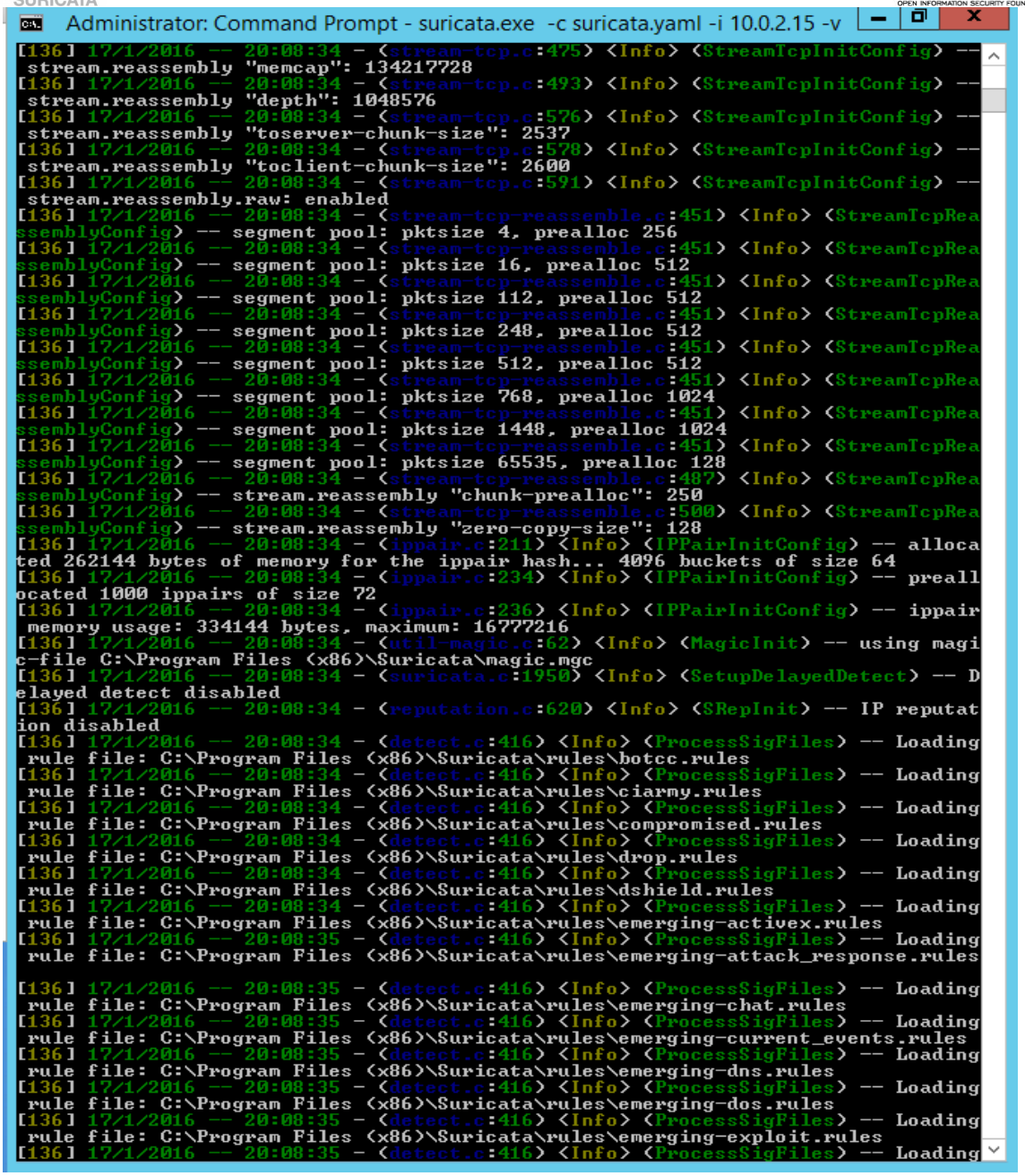
Got to C:\Program Files (x86)\Suricata and execute

C:\Program Files (x86)\Suricata>suricata.exe -c suricata.yaml -i 10.0.2.15 -v

like shown on the picture below (in this case – 10.0.2.15 is the IP/interface I want Suricata to listen to, i.e. the IP that my network card has been configured with):



And you have yourself Suricata running (the start time could depend the PC/Server CPU/MEM availability and of course how many rules and what options you have enabled in suricata.yaml):


Administrator: Command Prompt - suricata.exe -c suricata.yaml -i 10.0.2.15 -v
[136] 17/1/2016 -- 20:08:34 - (stream-tcp.c:475) <Info> (StreamTcpInitConfig) -- stream.reassembly "memcap": 134217728
[136] 17/1/2016 -- 20:08:34 - (stream-tcp.c:493) <Info> (StreamTcpInitConfig) -- stream.reassembly "depth": 1048576
[136] 17/1/2016 -- 20:08:34 - (stream-tcp.c:576) <Info> (StreamTcpInitConfig) -- stream.reassembly "toserver-chunk-size": 2537
[136] 17/1/2016 -- 20:08:34 - (stream-tcp.c:578) <Info> (StreamTcpInitConfig) -- stream.reassembly "toclient-chunk-size": 2600
[136] 17/1/2016 -- 20:08:34 - (stream-tcp.c:591) <Info> (StreamTcpInitConfig) -- stream.reassembly.raw: enabled
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 4, prealloc 256
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 16, prealloc 512
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 112, prealloc 512
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 248, prealloc 512
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 512, prealloc 512
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 768, prealloc 1024
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 1448, prealloc 1024
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:451) <Info> (StreamTcpReassemblyConfig) -- segment pool: pktsize 65535, prealloc 128
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:487) <Info> (StreamTcpReassemblyConfig) -- stream.reassembly "chunk-prealloc": 250
[136] 17/1/2016 -- 20:08:34 - (stream-tcp-reassemble.c:500) <Info> (StreamTcpReassemblyConfig) -- stream.reassembly "zero-copy-size": 128
[136] 17/1/2016 -- 20:08:34 - (ippair.c:211) <Info> (IPPairInitConfig) -- allocated 262144 bytes of memory for the ippair hash... 4096 buckets of size 64
[136] 17/1/2016 -- 20:08:34 - (ippair.c:234) <Info> (IPPairInitConfig) -- preallocated 1000 ippairs of size 72
[136] 17/1/2016 -- 20:08:34 - (ippair.c:236) <Info> (IPPairInitConfig) -- ippair memory usage: 334144 bytes, maximum: 16777216
[136] 17/1/2016 -- 20:08:34 - (util-magic.c:62) <Info> (MagicInit) -- using magic-file C:\Program Files (x86)\Suricata\magic.mgc
[136] 17/1/2016 -- 20:08:34 - (suricata.c:1950) <Info> (SetupDelayedDetect) -- Delayed detect disabled
[136] 17/1/2016 -- 20:08:34 - (reputation.c:620) <Info> (SRepInit) -- IP reputation disabled
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\botcc.rules
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\ciarmy.rules
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\compromised.rules
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\drop.rules
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\dshield.rules
[136] 17/1/2016 -- 20:08:34 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-activex.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-attack_response.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-chat.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-current_events.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-dns.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-dos.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading rule file: C:\Program Files (x86)\Suricata\rules\emerging-exploit.rules
[136] 17/1/2016 -- 20:08:35 - (detect.c:416) <Info> (ProcessSigFiles) -- Loading

Run Suricata on an un-ip'd interfaces

If you need to run Suricata on an un-ip'd interfaces(thanks to Rich Rumble for pointing that out):

You can get the NIC UUID in a variety of ways, the simplest is using a single command for WMIC:(from cmd prompt paste in the following)

wmic nicconfig get ipaddress,SettingID

If you know your NIC's IP you can filter the results with findstr:

wmic nicconfig get ipaddress,SettingID | findstr 1.2.3.4

(replace 1.2.3.4 with your NIC's IP)

Then use that as your interface argument:

suricata.exe -c suricata.yaml –i \\DEVICE\\NPF_\{EE7B2A76-9343-449F-B3D8-3CB0F37DCA49\}

Make sure the double slashes are used, and a backslash is placed before the curly braces!

That’s it.

From here on it is up to you to configure Suricata the way it suits you best!

Thanks for trying Suricata!

Info and documentation

You can find much more info about setting up and tuning Suricata here:

https://redmine.openinfosecfoundation.org/projects/suricata/wiki